REMARKS/ARGUMENTS

Claims 1-2 are active in this application, claim 3 having been canceled. Claim 1 has been amended to incorporate the limitations of claim 3. No new matter has been added by these amendments.

The present invention relates to an impact resistance modifier comprising a multilayered graft copolymer. The multilayered graft copolymer has an innermost layer polymer (A), an intermediate layer polymer (B) and an outer layer polymer (C). In particular, the innermost-layer polymer (A) is obtained by polymerizing monomer components comprising 100 parts by mass of a monomer mixture comprising 40 to 100% by mass of an alkyl methacrylate having an alkyl group with carbon number of 1 to 4, 0 to 60% by mass of an alkyl acrylate having an alkyl group with carbon number of 1 to 8 and 0 to 20% by mass of another copolymerizable monomer and 0.1 to 10 parts by mass of a polyfunctional monomer. The intermediate-layer polymer (B) is obtained by polymerizing monomer components comprising 100 parts by mass of a monomer mixture comprising 70 to 90% by mass of an alkyl acrylate having an alkyl group with carbon number of 1 to 8, 10 to 30% by mass of an aromatic vinyl compound and 0 to 20% by mass of another copolymerizable monomer and 1 to 3 parts by mass of a polyfunctional monomer in the presence of the innermost-layer polymer (A). The outer-layer polymer (C) is required to have a Tg within the range of 20 to 80°C and is obtained by polymerizing monomer component(s) comprising 50 to 100% by mass of an alkyl methacrylate having an alkyl group with carbon number of 1 to 4, 0 to 50% by mass of an alkyl acrylate having an alkyl group with carbon number of 1 to 8 and 0 to 20% by mass of another copolymerizable monomer in the presence of a polymer which has been made up to the intermediate-layer polymer (B). Additionally, the mass average particle diameter of the polymer which has been made up to the intermediate-layer polymer (B) is 200 to 300 nm, wherein the mass average particle diameter is evaluated using

a capillary cartridge for particle fractionation and a carrier liquid at neutral pH. Further, the mass ratio (A)/(B) of the innermost-layer polymer (A) to the intermediate-layer polymer (B) is 10/90 to 40/60 and the proportion of the outer-layer polymer (C) is 30 to 100 parts by mass when the sum of the innermost-layer polymer (A) and the intermediate-layer polymer (B) is set as 100 parts by mass.

Applicants have found that when the outer-layer polymer (C) has a Tg that is restricted within the range of 20-80°C, the resulting compositions have excellent blocking resistance and excellent impact resistance (see specification at page 8, lines 18-25).

The objection to claim 3 has been obviated by its incorporation into claim 1 and cancellation of claim 3.

The claims stand rejected under 35 U.S.C. 103 over Sugaya. Sugaya nowhere recognizes or teaches the criticality of the Tg of the outer-layer polymer, nor that this Tg should be restricted within the range of 20-80°C as required in the present invention. The Examiner notes that Sugaya discloses the use of monomers for their outer layer polymer such as methyl methacrylate (MMA). The Examiner further notes that additional monomers can include monomers such as alkyl acrylate, including butyl acrylate (BA) as used in Sugaya's examples. The Examiner then calculates the Tg of a range of 60/40 MMA/BA to 100/0 MMA/BA as being 19.9°C to 105°C using the Fox equation in the present specification. However, Applicants note that the only example provided by Sugaya has a ratio of MMA/BA of 24/1. Using the Fox equation, this copolymer has a Tg of 94°C. Such a Tg value is outside the range of the present invention.

Applicants have provided Examples and Comparative Examples within the present specification that show the criticality of this Tg range for the outer-layer polymer (C). In

particular, Comparative Example 3 provides a multilayered graft copolymer having an outer-layer Tg of 10°C, **below** the minimum of 20°C of the present invention. Comparative Example 7, on the other hand, provides a multilayered graft copolymer having an outer-layer Tg of 99°C, similar to the Tg of the copolymer used by Sugaya, and **well above** the maximum Tg permitted in the present invention. In each case, the resulting composition had unacceptable properties, with Comp. Ex. 3 resulting in agglomeration (see Table 2 and lines 8-10 of page 24), and Comp. Ex. 7 resulting in unacceptably low izod impact strength (see Tables 2 and 3). However, when the Tg was maintained within the required 20-80°C range of the present invention, the resulting composition had superior properties.

Sugaya nowhere suggests the criticality of keeping the outer-layer Tg in the 20-80°C range. In fact, based upon Sugaya, one of ordinary skill in the art would be expected to use an outer-layer polymer having a Tg much higher than 80°C, since that is the only thing Sugaya actually shows. At the very best, one of ordinary skill would not have any expectation that keeping the Tg of the outer-layer polymer within the 20-80°C range, as required in the present invention, would result in any superior performance of the resulting composition. As such, Applicants have shown the criticality of this Tg range, when combined with the other requirements within the present composition, and the rejection over Sugaya has been amply rebutted. Accordingly, the rejection should be withdrawn.

Applicants submit that the application is in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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